Draft
Environmental Assessment

Temporary Wild Fish Transfer and Containment to Test eDNA Sampling Techniques

April 2015

Montana Fish, Wildlife & Parks

Region 2
3201 Spurgin Rd., Missoula, MT 59804
406-542-5500

Draft Environmental Assessment
CHECKLIST

PART I. PROPOSED ACTION DESCRIPTION

1. Type of proposed state action: Montana Fish, Wildlife & Parks (FWP) proposes to collect, transfer upstream, and temporarily hold wild westslope cutthroat trout and bull trout in containment structures (enclosures) to test Environmental DNA (eDNA) sampling techniques. Fish would be temporarily held within stream reaches (above natural barriers and within the same stream drainage) where the transported species is known to be absent.

2. Agency authority for the proposed action: FWP statute authority to manage Montana's sport fisheries, including sampling and research using wild fish per Section 87-1-201, Montana Code Annotated.

3. Anticipated Schedule: July-October 2015 & 2016

4. Location affected by proposed action (county, range and township – included map):

All stream segments are located in Missoula County:

Deer Creek: T17N, R16W, Sections 16-18 (Figure 1)

Morrell Creek: T18N, R14W, Section 18; T18N, R15W, Sections 13 & 24 (Figure 1)

Lolo Creek: T11N, R24W, Section 35; T10N, R24W, Section 2 (Figure 2)

5. Project size--estimate the number of acres that would be directly affected that are currently:

	Acres		Acres
(a) Developed:		(d) Floodplain	0
Residential	0		
Industrial	0	(e) Productive:	
(existing shop area)		Irrigated cropland	0
(b) Open Space/	0	Dry cropland	0
Woodlands/Recreation		Forestry	0
(c) Wetlands/Riparian	10	Rangeland	0
Areas		Other	0

6. Permits, Funding & Overlapping Jurisdiction.

(a) Permits: permits will be filed at least 2 weeks prior to project start.

Agency Name	Permits
U.S. Fish & Wildlife Service	Section 6 – ESA (Bull Trout)

(b) Funding:

Agency Name	Funding Amount
Montana Fish, Wildlife & Parks	$5,000
U.S. Forest Service – Rocky Mountain Research Station	$10,000

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name	Type of Responsibility
U.S. Fish & Wildlife Service	Manage Federally listed species (bull trout)
U.S. Forest Service	Project partner and land manager

7. **Narrative summary of the proposed action:** Environmental DNA (eDNA) essentially consists of genetic material from cells that are naturally shed by living aquatic organisms. Because different organisms have unique DNA, geneticists can identify if target species are present in a water body by looking for specific segments of eDNA. In this technique, water samples are collected from streams, rivers or lakes, and laboratory analyses are completed to determine if specific species (in this case, bull trout and westslope cutthroat trout) are present in the water body sampled.

FWP is assisting the US Forest Service Rocky Mountain Research Station in developing standard eDNA sampling protocols and refining sampling techniques. In order to effectively test and evaluate this technique, live native trout would be transported from downstream stream reaches and temporarily held within enclosure cages in reaches of that stream that are above natural physical barriers and are where the transported species is known to be absent. This technique would be tested on up to three separate streams in Missoula County: Deer and Morrell Creeks near Seeley Lake, and Lolo Creek west of Lolo. Refinement of this technique is a critical step in developing a fisheries sampling tool that would likely become a standard technique for FWP fisheries biologists and other professionals in Montana.

8. Description and analysis of reasonable alternatives:

Alternative A: No Action. Experiments testing eDNA sampling techniques would be conducted in current fish-bearing reaches where test species are already present. This alternative is less desirable because DNA from individuals in enclosures cannot be distinguished from DNA from individuals naturally inhabiting the stream outside the enclosures. Uncontrolled movement and presence of test species throughout study sections would confound results of eDNA collection and make it extremely difficult to implement an effective study design.

Alternative B: Proposed Action. FWP would complete the controlled eDNA sampling experiments in stream segments (above natural barriers to upstream fish movement) where the transported species (bull trout and/or westslope cutthroat trout) are known to

be absent. Once testing is completed, fish would be returned to their natural place of origin downstream of enclosure sites.

9. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

Direct mitigation measures include construction of fish enclosures that ensure transported captive fish would not escape into fishless reaches; essentially a reinforced, locked cage-within-a cage design with undersized mesh that ensures fish cannot exit and predators cannot reach captive fish. Only native trout species would be used in trials, and only individuals captured within the same watershed. In addition, standard protocols would be followed to ensure that unwanted pathogens (e.g., fish diseases) are not transported into upstream test reaches. Fish used in trials would be transported in covered adequately sized containers at water temperatures $<12^{o}$ C to minimize stress and the possibility of handling mortality.

PART II. ENVIRONMENTAL REVIEW CHECKLIST

Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

A. PHYSICAL ENVIRONMENT

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Geology and soil quality, stability and moisture				X		
2. Air quality or objectionable odors				X		
3. Water quality, quantity and distribution (surface or groundwater)				X		
4. Existing water right or reservation				X		
5. Vegetation cover, quantity and quality				X		
6. Unique, endangered, or fragile vegetative species				X		
6. Terrestrial or aquatic life and/or habitats				X		
7. Unique, endangered, or fragile wildlife or fisheries species			X		X	A.7
8. Introduction of new species into an area			X		X	A.8
9. Changes to abundance or movement of species				X		

A.7. Bull trout and westslope cutthroat trout are both fish Species of Concern in Montana, and bull trout are listed as Threatened under the Endangered Species Act. Individuals used in eDNA trials would consist of 5-10 juveniles of each species collected within the same drainage downstream of the proposed project sites. Transport of small numbers of sub-adult native trout from within the same drainage would minimize any impact should any individuals escape. Enclosures would be constructed to be escape-proof and locked to reduce risk of tampering. Once eDNA testing is completed, fish would be transported and released at their original capture locations.

A.8. Experiments would be conducted in upper reaches of several streams that are currently fishless or (in one case) do not contain one of the proposed test species, presumably because the sites lie upstream of fish migration barriers (waterfalls). Escape of caged fish into these stream reaches is extremely unlikely given the proposed design of enclosures. However, because of inherent risk of fish escape, several other precautions were added to the proposed experimental design: (1) Only native trout would be used in trials; (2) Individuals held in enclosures would originate from downstream stream reaches within the same drainage; and (3) no adult individuals would be transported; only sub-adults (based on size).

B. HUMAN ENVIRONMENT

Will the proposed action result in potential impacts to:	Unknown	Potentially Significant	Minor	None	Can Be Mitigated	Comments Provided
1. Noise and/or electrical effects				X		
2. Land use				X		
3. Risk and/or health hazards				X		
4. Community impact				X		
5. Public services/taxes/utilities				X		
6. Potential revenue and/or project maintenance costs				X		
7. Aesthetics and recreation				X		
8. Cultural and historic resources				X		
9. Evaluation of significance				X		
10. Generate public controversy				X		

PART III. NARRATIVE EVALUATION AND COMMENT

Temporary relocation of juvenile native trout to upstream stream reaches where these species are known to be absent is proposed in three drainages to field test a new fisheries sampling technique (eDNA) that already has wide applicability. Mitigation measures have been incorporated to limit the possibility of unintentional introduction of new species into fishless reaches and to minimize the possibility of disease/pathogen transfer. Although these experiments could be conducted in alternative fish-bearing reaches, the confounding effects of wild fish make experimental design and quality control difficult.

Given the minimal risks to wild fish and other populations, as well as the anticipated applications of eDNA sampling to the fisheries profession, implementation of the proposed controlled field experiments is justified.

PART IV. PUBLIC PARTICIPATION

1. Public involvement:

The public will be notified in the following manners about the opportunity to comment on this current EA, the proposed action and alternative:

- Legal notices will be published once in each of these newspapers: *Independent Record* (Helena), *Missoulian*, and *Seeley Pathfinder* (Seeley Lake)
- Public notice will be posted on FWP's webpage: http://fwp.mt.gov ("News," then "Public Notices"). The Draft EA will also be available on this webpage, along with the opportunity to submit comments online.
- Direct mailing or email notification will be made to adjacent landowners and other interested parties (individuals, groups, agencies) to ensure their knowledge of the proposed project.

Copies of this draft EA may also be obtained by mail from Region 2 FWP, 3201 Spurgin Rd., Missoula 59804; by phoning 406-542-5540; by emailing shrose@mt.gov; or by viewing FWP's Internet website http://fwp.mt.gov ("Public Notices," beginning April 3, 2015).

This level of public notice and participation is appropriate for a project of this scope having limited impacts, many of which can be mitigated.

2. Duration of comment period:

The public comment period will extend for thirty (30) days beginning with publication of the legal notice in the *Missoulian*. **Comments must be received by FWP no later than 5:00 p.m. on May 4, 2015 .**

Comments should be directed by: mail to FWP Region 2, Attn: Sharon Rose, 3201 Spurgin Road, Missoula, MT 59804; phone to 406-542-5540; or email to *shrose@mt.gov*.

PART V. EA PREPARATION

1. Based on the significance criteria evaluated in this EA, is an EIS required? (Yes/No)? No.

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.

The proposed project involves a temporary transfer of live fish into fishless waters of the same stream drainage, which is expected to result in no permanent changes to the affected waters if precautionary measures are implemented. Little public interest or controversy related to the proposal is expected.

2. Person(s) responsible for preparing the EA:

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3. List of agencies or offices consulted during preparation of the EA:

U.S. Fish and Wildlife Service
U.S. Forest Service
Montana Trout Unlimited

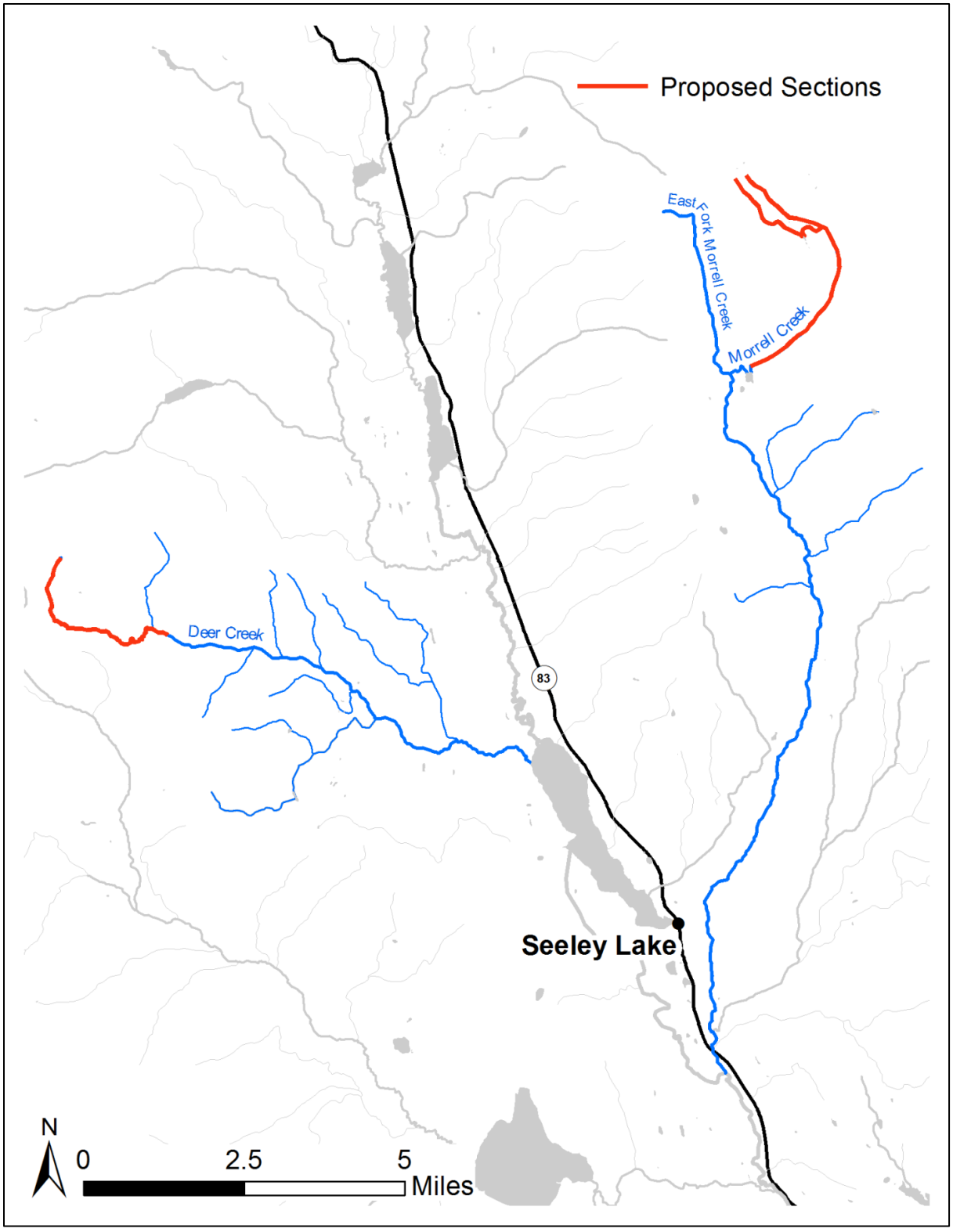

Figure 1. Map displaying proposed locations for eDNA sampling trials on Deer Creek and Morrell Creek (proposed sections in red are the upstream locales to which fish will be temporarily transported and held in enclosures).

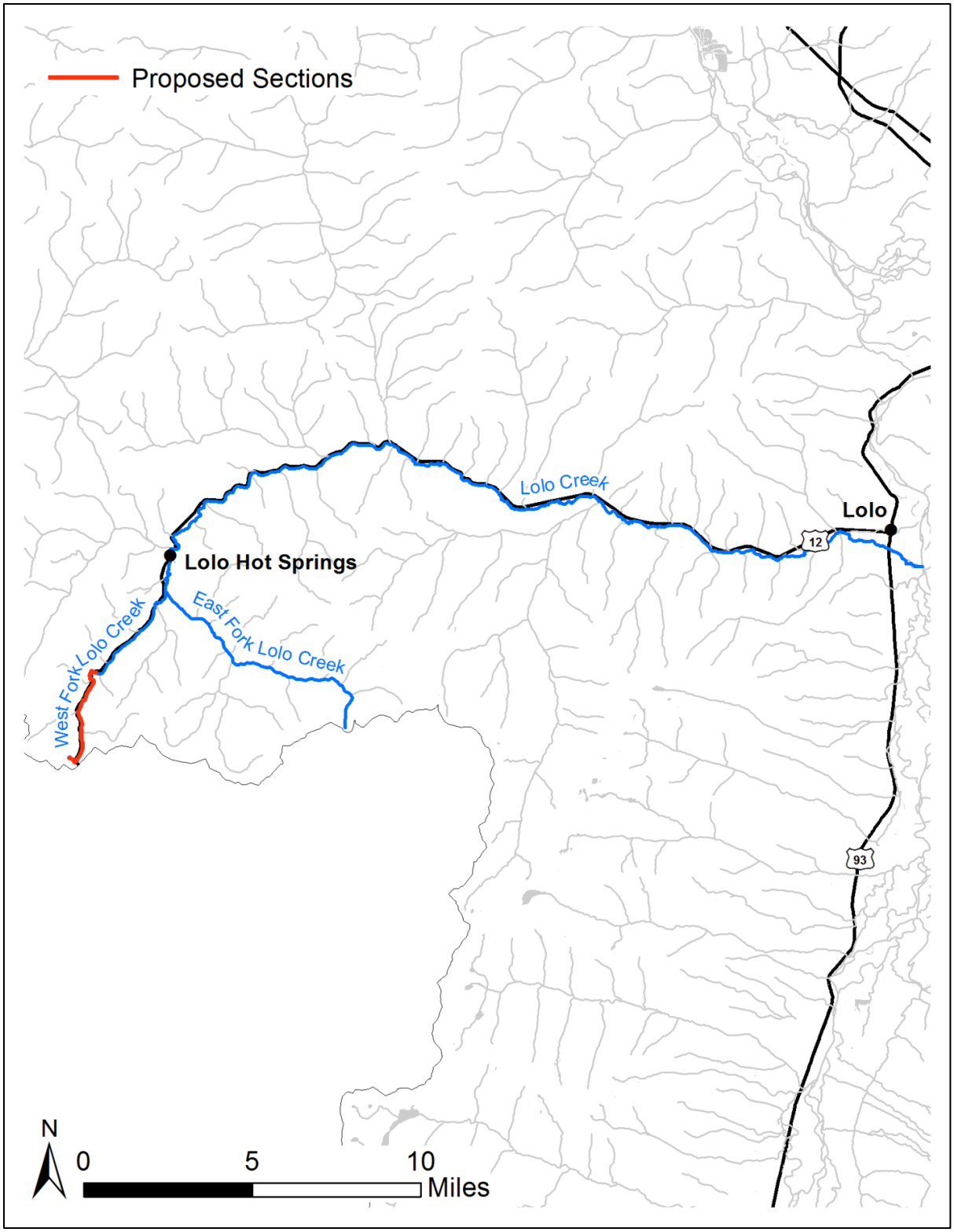

Figure 2. Map displaying proposed location for eDNA sampling trials on West Fork Lolo Creek (proposed sections in red are the upstream locales to which fish will be temporarily transported and held in enclosures).